

REMARKS

Claims 1-11 and 13-15, 19, and 20 are pending in the application. Favorable reconsideration is respectfully requested in light of the following Remarks.

1. Rejection of Claims 1-11, 13 and 19 under 35 U.S.C. 103(a)

The Office action rejects Claims 1-11, 13 and 19 under 35 U.S.C. 103(a) over Hoffmann et al. (U.S. Patent No. 4,093,869, hereinafter "Hoffmann") in view of Hammerstrom et al. (U.S. Patent No. 2,732,509, hereinafter "Hammerstrom"). The rejection is respectfully traversed.

Independent Claims 1 and 6 are directed to a stator core including a plurality of salient poles thereon concentrically disposed about and spaced apart from an armature winding. The plurality of salient poles includes a plurality of direct current (DC) salient poles and at least one alternating current (AC) salient pole, wherein respective AC salient poles of the at least one AC salient pole are disposed between adjacent DC salient poles of the plurality of DC salient poles, and at least one AC field coil disposed respectively on said at least one AC salient pole, the magnetic axes of said at least one AC field coil being disposed substantially in electromagnetic space-quadrature relation with respect to the magnetic axes of said DC field coils.

Hoffmann is directed to an exciter in which the direct current field excitation is provided for the synchronous generator field winding independently of the speed of the rotor shaft so that the exciter armature will have sufficient excitation output capability for starting purposes with the shaft at zero or very low speeds. *See col. 44-63.* To accomplish this, an alternating current starting coil 62 is interposed between salient pole direct current stator field coils 57 in a space-quadrature relationship with respect to the direct axis 60, or magnetic axis, of the direct current field coil 57 so that voltage will not be induced into the DC field winding 56 when the AC starting winding is energized.

Hammerstrom is directed to an electric machine, such as a generator or motor, that compensates for the delay in current flow in the winding caused by the reactance of the rotor circuit by positioning the stator winding in a circularly advanced position so as

to be located opposite the rotor pole at the exact moment that the current is flowing in the rotor winding. *See Fig. 1; col. 1, lines 60-68.* Specifically, the centers of adjacent rotor poles are spaced ninety (90) degrees apart, but the stator output poles 19, 20 and their coils are not spaced a corresponding ninety (90) degrees from the adjacent field poles 15, 16. Rather, the poles 19, 20 and their coils are advanced in the direction of rotor rotation to a location beyond the midway points between the stator poles 15, 16. This advancement of the stator output windings 26, 27 compensates for the reactance of the rotor winding circuit, which causes a delay in the buildup of current in the stator winding after the generation of an electromotive force in the winding. *See Fig. 1; col. 5, lines 31-47.* Thus, Hammerstrom teaches that poles 19, 20 are not in a space-quadrature relationship with the direct axis or magnetic axis of the direct current field coil.

According to MPEP §2143, to establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Linter*, 458 F.2d 1013, 173 USPQ 560, 562 (CCPA 1972). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Finally, the applied reference must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

In the instant application, the Office action has done little more than cite references to show that one or more elements or sub-combinations thereof, when each is viewed in a vacuum, is known. The claimed invention, however, is clearly directed to a combination of elements. That is to say, Applicant does not claim that he has invented one or more new elements, but has presented claims to a new combination of elements. To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the Office action must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 USPQ 972, 973 (B.P.A.I. 1985).

The line of reasoning in the Office action is that it would have been obvious to

replace the air cores of Hoffmann with the iron cores of Hammerstrom because the starting torque in Hoffmann would be increased. However, this line of reasoning was gleaned from Applicant's disclosure, not from the cited references. *See Paragraphs [0005] and [0006].* Because the cited references are directed to solving different problems, the artisan would not have found it obvious to selectively pick and choose elements or concepts from the various references so as to arrive at the claimed invention without using the claims as a guide. It is to be noted that the determination of obviousness can not be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the claimed invention. *ATD Corporation v. Lydall, Inc.*, 48 USPQ 2d 1321, 1329 (Fed. Cir. 1998).

In view of the foregoing, it is respectfully submitted that the Office action fails to establish a *prima facie* case of obviousness because there is no suggestion or motivation to modify Hoffmann with Hammerstrom to meet the claimed invention.

For at least this reason, independent Claims 1 and 6 are allowable over the applied art, taken singly or in combination. Claims 2-5 and 13, which depend from Claim 1, and Claims 7-11 and 19, which depend from Claim 6, are likewise allowable over the applied art, taken singly or in combination. Withdrawal of the rejection is respectfully requested.

2. Rejection of Claims 14, 15 and 20 under 35 U.S.C. 103(a)

The Office action rejects Claims 14, 15 and 20 under 35 U.S.C. 103(a) over Hoffmann in view of Hammerstrom, and further in view of Sibata (U.S. Patent No. 5,220,228, hereinafter "Sibata"). The rejection is respectfully traversed.

Applicant agrees with the Office action that Hoffmann and Hammerstrom fail to disclose a flared extension. Sibata discloses salient poles 14 with beveled areas 14b at the lateral ends so that the induced voltage of the ring magnet 12 having a radial anisotropy shows a sustained sinusoidal waveform, thereby minimizing the level of cogging. *See col. 3, lines 30-37.* Upon closer examination, the flared extension 182 of the claimed invention is not beveled in a similar manner as Sibata, and has the purpose of providing additional support the AC field windings 172 and/or DC field winding 162. *See Paragraph [0029].*

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Again, the Office action has done little more than cite references to show that one or more elements or sub-combinations thereof, when each is viewed in a vacuum, is known. The artisan would not have found it obvious to selectively pick and choose elements or concepts from the various references so as to arrive at the claimed invention without using the claims as a guide.

In view of the foregoing, it is respectfully submitted that the Office action fails to establish a *prima facie* case of obviousness because there is no suggestion or motivation to modify Hoffmann and Hammerstrom with Sibata to meet the claimed invention.

For at least this reason, independent Claims 14, 15 and 20 are allowable over the applied art, taken singly or in combination. Withdrawal of the rejection is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of the application is earnestly solicited.

Should Examiner Le believe anything further would be desirable in order to place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

It is believed that any additional fees due with respect to this paper have already been identified. However, if any additional fees are required in connection with the filing of this paper, permission is given to charge account number 07-0868 in the name of General Electric Company.

Respectfully submitted,



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